NEW PUBLICATIONS.

The Copernicus of Antiquity (Aristarchus of Samos). By Sir
Thomas L. Heath. London, 1920. Pp. iv + 60.

If any teacher of mathematics is looking for a brief survey
of the astronomy of the Greeks, with biographies of the great-
est workers in this field—most of them mathematicians as
well—and if he wishes this survey set forth in a style that will
appeal to himself and his pupils, mingling anecdote with his-
torical facts, let him send forthwith to the New York agents
(The Macmillan Company) and order this latest product of
the prolific pen of Sir Thomas Heath. Here he will find the
story of the makers of the one great application of mathematics
among the Greeks; he will find this story told as he would like
to tell it to his own classes; he will read the book at a single
sitting; he will learn much of ancient science; and incidentally
he will see what the study of Greek does for a writer of
English.

The volume is one of those little handbooks that are issued
by the Society for Promoting Christian Knowledge—hand-
books that, unfortunately, we have no fund for publishing in
this country—and that bring the contributions of some of the
best writers of Great Britain to the doors of the humblest cot-
tage. The United States seems to meet the need for inex-
pensive literature by the publication of low-priced journals,
most of them of little value except to the advertiser; England
meets it by several series like the one issued by this well-known
society, and of which the volume under review is a type. It
is a matter of deep regret, if not of chagrin, that we have no
endowment for the publication of worthy scientific books that
might help to raise the intellectual standards of our people.

Sir Thomas Heath divides the work into two parts, the first
dealing with upwards of a dozen astronomers who lived before
the time of Aristarchus (c. 280 B.C.), and the second dealing
with Aristarchus himself. In language characterized by sim-
plicity, clearness and good taste, the author mingles the human
story with a record of the scientific progress of the greatest

nation, intellectually considered, of ancient times—and perhaps of all time. He shows how the Greek understanding of the heavens developed, beginning with the time when Homer spoke of the earth as a flat, circular disk bounded by the river Oceanus that encircled it and flowed back into itself; and when he sang of the Morning Star, the Evening Star, the Pleiades, the Great Bear and other prominent stars and constellations. He tells again the story of Thales falling into the well while watching the stars, being thereupon chided by "a clever and pretty maidservant from Thrace for being so 'eager to know what goes on in the heavens that he could not see what was in front of him, nay, even at his very feet.'" Here, too, the reader will learn how Anaximander took a step in advance of those who had preceded him, asserting that the earth is the center of the universe and is held in position by being equidistant from all the rest of the heavenly bodies, and that the sun and the moon are carried about the earth on hoops. It was he who attempted to find the size of the circles of these two heavenly bodies—the first noteworthy step in the measurement of the solar system. He will also learn of that great figure in Greek mathematics, Pythagoras, whose "most epochmaking discovery was that of the dependence of musical tones on numerical proportions, the octave representing the proportion of $2:3$ in length of string at the same tension, the fifth $3:2$ and the fourth $4:3$." It is he, so tradition tells us, who first maintained that the earth is a sphere, and who first observed that the planets have an independent motion of their own as distinguished from the motion of the fixed stars. The reader will also find the poet merging into the mathematician and the astronomer, not merely in the case of Parmenides, with his systems of wreaths about the sphere of the universe, forming pathways for the sun and moon and stars, but in other cases as well; and will find that history confirms what is so generally felt by teachers of mathematics—that geometry and poetry are always closely allied. He will learn how a mathematician, Anaxagoras (c. 450 B.C.), first propounded the idea that the moon shines by reflected light; that Plato ranked high as an astronomer as well as a geometer and a philosopher; and that the causes of eclipses were correctly stated by various mathematicians who preceded Aristarchus.

In Aristarchus himself the reader will find the Copernicus of the Greeks—that is, the man who first set forth the heliocentric theory of the solar system. Indeed, Copernicus himself acknowledged his debt to Aristarchus with respect to this great discovery. To the teachers of mathematics, however, it is Aristarchus's treatise *On the Sizes and Distances of the Sun and Moon* that will be of chief interest. In this portion of the work Sir Thomas Heath has gone into the mathematics of Aristarchus and has furnished the teacher with a considerable amount of material that can be used to advantage in the classroom.

The work closes with a brief but helpful bibliography.

It is not so much the facts which are set forth as it is the way in which these facts are presented that makes this little book one that the teacher will be glad to own. The facts can be obtained elsewhere, but not the style, and it is the style and the mission of the book that will lead the reader to overlook the quality of paper that the war has rendered inevitable, and to recognize in the Society for Promoting Christian Knowledge a medium for disseminating healthy information that we may well envy.

DAVID EUGENE SMITH.

Book Review Series—Elementary Algebra. By MURRAY J. LEVENTHAL. New York City: Globe Book Company. Pp. 56.

Schools which prepare pupils for Regents or College Entrance Examinations have found systematic review courses a necessary phase of their teaching organization. This *Elementary Algebra* by Leventhal brings together in convenient compass well-selected lists of problems, many of which are taken from previous examinations. It seems to meet admirably the purpose for which it was prepared.

Principles and Methods of Teaching Arithmetic. By JAMES ROBERT OVERMAN. Chicago: Lyons and Carnahan, 1921. Pp. 340.

The character of texts on the teaching of arithmetic has changed noticeably in recent years. More emphasis upon the